

EG&G ROCKY FLATS

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RECEIVED

December 9 1993

Dr. Frederick R. Dowsett ¹⁶
Colorado Department of Health
Hazardous Materials and Waste Management Division
HMWMD HWC B2
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

RESPONSE TO REQUEST FOR INFORMATION ON REACTIVE CHEMICALS
ALS 658 93

During a meeting held at the Rocky Flats Plant (RFP) on December 1, 1993 involving members of your staff, members of my staff and representatives of the United States Department of Energy, Rocky Flats Office (DOE RFO), several issues related to the management, storage and treatment of peroxide forming compounds were discussed. This letter serves as follow up to those discussions, as requested by Cathy Alstatt of your staff.

Issue 1

Cathy Alstatt questioned the rationale for constructing a new Ultraviolet (UV) Oxidation unit in Building 881 for the purpose of destroying peroxide forming compounds rather than employing the existing system located at Operable Unit (OU) 1

Response

There are several technical concerns associated with the use of the UV Oxidation system located at OU 1 for destruction of peroxide forming compounds. The following is a brief summary of those concerns:

The OU 1 unit is designed for destruction of extremely low levels of organic compounds in ground water. There are specifically identified target contaminants which the system is designed to treat which do not include the peroxide forming compounds. The system operates at a wavelength which may not effectively treat peroxide forming compounds possibly resulting in the formation of potentially hazardous byproducts such as dioxins. The unit being constructed in Bldg. 881 will be designed to operate at a wavelength appropriate for destruction of peroxide forming compounds.

There is a lack of adequate monitoring equipment that would be required to safely and adequately treat these compounds. A high pressure liquid chromatograph (HPLC) is required to identify successful destruction of the compounds being treated. Treatment such as is proposed for the unit being installed in Bldg 881 would be monitored using this equipment. During operation, a given batch would be recycled through the system until the instrument indicates complete destruction. Without this equipment, it would be impossible to identify successful destruction, or the need to recycle a batch through the system prior to the effluent being collected in the holding tank and analyzed. This would allow potential cross contamination with effluent from Environmental Restoration operations resulting in additional generation of hazardous waste.

The existing design would likely generate heat sufficient to cause certain organic compounds if not adequately destroyed to volatilize and be lost to the atmosphere in vented receiving tanks

ADMIN RECORD

[illegible]

CLASSIFICATION		
CLASSIFIED	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CONFIDENTIAL	<input type="checkbox"/>	<input type="checkbox"/>
SECRET	<input type="checkbox"/>	<input type="checkbox"/>

AL -ORIZED CLASSIFIER
SIGNATURE _____


NYE/KS ONLY

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4 EPI Y TO RFP CC VO
none

ACTION ITEM STATUS

— arrial/Open

☒ Closed 

LTR APPROVALS

EXTRA APPROVALS
14

CRIG & TYPIST INITIALS

5469 (Rev. 2-97)

7-20409 Rev 9/93

A number of the peroxide forming compounds are P and U listed hazardous wastes. The Derived From rule states that residues resulting from the treatment of listed hazardous waste are also listed hazardous waste. The existing design of the unit at OU 1 does not allow for adequate management of listed hazardous waste effluent. Effluent from the system is currently discharged to the south interceptor ditch which is not a hazardous waste management unit. Significant modification would be required to allow the waste to be transported to the Bldg 374 evaporator for further treatment. (EG&G realizes that Bldg 374 (Unit 42) is not approved to treat P and U wastes at this time. EG&G will submit a request for change to interim status prior to transporting any waste water to Bldg 374).

Finally, there are no interim status or permitted storage facilities available at OU 1 which would be adequate for storing and batching peroxide forming compounds prior to treatment. If managed in Bldg 881 as a treatability study, the chemicals could be transferred to that location to be stored as needed under the treatability study exemption storage provisions.

In summary, resolution of these concerns would require such extensive re engineering and modification to the existing unit at OU 1 that it is not cost or schedule effective to consider using this system for these chemicals. The cost of installing a bench scale unit in Bldg 881 would be significantly lower than the cost of modifying the unit at OU 1. Furthermore, appropriate modifications cannot be determined until a bench scale test of the different groupings of peroxide forming compounds has been conducted.

Issue 2

Cathy Alstatt questioned the appropriateness of EG&G's intention to treat stabilized peroxide forming compounds under the Treatability Study provisions in the Colorado Hazardous Waste Regulations.

Response

EG&G feels that this activity clearly falls under these provisions. The definition of Treatability Study found in 6 CCR 1007.3 § 260.10 includes a study in which a hazardous waste is subjected to a treatment process to determine: (1) Whether the waste is amenable to the treatment process; (2) what pretreatment (if any) is required; (3) the optimal process conditions needed to achieve the desired treatment; (4) the efficiency of the treatment process for a specific waste or wastes; or (5) the characteristics and volumes of residuals from a particular treatment process. A Treatability Study is not a means to commercially treat or dispose of hazardous waste.

While it is true that UV Oxidation is a proven treatment technology for destruction of organics, the parameters listed in the definition above are as yet undefined for the peroxide forming wastes targeted for this treatment. As outlined in Issue 1 above, a bench scale test would be required to define those parameters before adequate treatment could be assured. It is also true that, given the limited population of these wastes currently targeted for this treatment, it is possible that the entire existing population of these wastes may be consumed during the study. However, there is no doubt that these types of wastes will continue to be found at RFP, and if the technology proves favorable, RFP will ultimately seek a modification to the existing RCRA permit to include this treatment process. RFP feels that it is premature to request a treatment permit for a unit which may not be operable.

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Issue 3

Cathy Alstatt questioned the practice of storing containers of List A chemicals (isopropyl ether) for longer than the suggested three month time period outlined in the National Safety Council Data Sheet 1-655 Rev 87 (Enclosure 1)

Response

There are two containers in question both are containers of isopropyl ether in volumes of no greater than 30 ml each. One container is stored in Bldg 881 and one is in T993A. Both containers have been tested/stabilized twice at which time extra inhibitor was added to further inhibit peroxide formation. These containers pose no particular threat to personnel during normal packaging and transfer operations in preparation for eventual treatment. (See enclosed letter from John Listemann EG&G Occupational Safety)

Issue 4

CDH recommended that all previously stabilized reactive chemicals destined for further treatment (UV Oxidation) continue to be stored in their current locations rather than be transferred to permitted or interim status storage pending treatment.

Response

This letter serves as documentation that as directed by Cathy Alstatt of your staff these containers will remain in their current locations (see Enclosure 3) until January 28 1994 when it is our intent to transfer the chemicals to Bldg 881 to be treated. These wastes will be managed consistent with applicable Rocky Flats Plant policies and procedures for managing wastes in Satellite and 90-Day Accumulation Areas rather than in permitted or interim status storage areas.

We are looking forward to discussing our response to Ms Alstatt's issues at our next biweekly meeting. In the interim if you have any questions please contact me at 966 5251.



A. L. Schubert Director
Waste Programs
EG&G Rocky Flats Inc

RML aaf

Ong and 1 cc Dr Frederick R Dowsett

Enclosures
As Stated (3)

cc

J. C. Leifer	DOE RFO
J. J. Rampe	
G. L. Potter	EG&G Rocky Flats Inc

LOCATIONS OF STABILIZED PEROXIDE FORMING CHEMICALS

<u>Building</u>	<u>Room</u>	<u>Unit Type</u>
123	156	Satellite
123	125	90-Day
701	N/A	90 Day
771	West Dock	90 Day
T993A	N/A	Satellite
881	234	90 Day